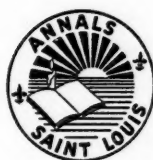


# ANNALS OF OTOLOGY, RHINOLOGY & LARYNGOLOGY

ANNALS OF HEAD & NECK MEDICINE & SURGERY®

— Founded in 1892 —

Volume 99  
January-December 1990  
Issues 1-12, Supplements 144-151



*Published by*

ANNALS PUBLISHING COMPANY  
4507 LACLEDE AVENUE  
ST LOUIS, MISSOURI 63108

Copyright© 1990, Annals Publishing Company

---

# ANNALS OF OTOTOLOGY, RHINOLOGY & LARYNGOLOGY

ANNALS OF HEAD & NECK MEDICINE & SURGERY®

— Founded in 1892 —

---

## Editor

BRIAN F. MCCABE, MD  
Iowa City

## Associate Editors

CHARLES D. BLUESTONE, MD  
Pittsburgh

BARBARA A. BOHNE, PhD  
St Louis

LEE A. HARKER, MD  
Omaha

## Board of Editors

JOHN C. BATSAKIS, MD ..... Houston  
PAUL BRET LAU, MD ..... Copenhagen  
JACK D. CLEMIS, MD ..... Chicago  
ALFRED C. COATS, MD ..... Houston  
CHARLES W. CUMMINGS, MD ..... Seattle  
LAWRENCE W. DESANTO, MD ..... Scottsdale, Ariz  
MANUEL DON, PhD ..... Anaheim, Calif  
PATRICK J. DOYLE, MD ..... Vancouver  
ARNDT J. DUVALL III, MD ..... Minneapolis  
ALFIO FERLITO, MD ..... Padua, Italy  
UGO FISCH, MD ..... Zurich  
JEFFREY P. HARRIS, MD, PhD ..... San Diego  
GERALD B. HEALY, MD ..... Boston  
WILLIAM F. HOUSE, MD ..... Los Angeles

STEVEN K. JUHN, MD ..... Minneapolis  
JEROME O. KLEIN, MD ..... Boston  
DAVID J. LIM, MD ..... Columbus  
FRANK E. LUCENTE, MD ..... New York  
JOSEF MILLER, PhD ..... Ann Arbor  
WILLIAM W. MONTGOMERY, MD ..... Boston  
EUGENE N. MYERS, MD ..... Pittsburgh  
YASUYA NOMURA, MD ..... Tokyo  
FRANK N. RITTER, MD ..... Ann Arbor  
ROBERT J. RUBEN, MD ..... Bronx  
JACOB SADÉ, MD ..... Tel Aviv, Israel  
ISAMU SANDO, MD ..... Pittsburgh  
CLARENCE T. SASAKI, MD ..... New Haven  
HARVEY M. TUCKER, MD ..... Cleveland

## Imaging Editor

KENNETH D. DOLAN, MD ..... Iowa City

## Book Review Editor

DENNIS G. PAPPAS, MD ..... Birmingham, Ala

## Emeritus Board Members

MAXWELL ABRAMSON, MD ..... New York  
WESLEY H. BRADLEY, MD ..... Albany  
D. THANE CODY, MD ..... Jacksonville, Fla  
SEYMOUR COHEN, MD ..... Los Angeles  
CHARLES F. FERGUSON, MD ..... Sarasota, Fla  
JOHN M. FREDRICKSON, MD ..... St Louis  
STANTON A. FRIEDBERG, MD ..... Chicago  
RICHARD R. GACEK, MD ..... Syracuse  
GEORGE A. GATES, MD ..... St Louis  
JOSEPH L. GOLDMAN, MD ..... New York  
JEROME C. GOLDSTEIN, MD ..... Albany  
VICTOR GOODHILL, MD ..... Los Angeles  
D. F. N. HARRISON, MD ..... London  
VINCENT J. HYAMS, MD ..... Washington, DC

L. B. W. JONGKEES, MD ..... Amsterdam  
SAM E. KINNEY, MD ..... Cleveland  
JOHN A. KIRCHNER, MD ..... New Haven  
FRED H. LINTHICUM, JR, MD ..... Los Angeles  
CARY N. MOON, JR, MD ..... Charlottesville  
MICHEL PORTMANN, MD ..... Bordeaux, France  
LORING W. PRATT, MD ..... Waterville, Me  
GUNNER O. PROUD, MD ..... Kansas City, Kan  
WILLIAM H. SAUNDERS, MD ..... Columbus  
F. BLAIR SIMMONS, MD ..... Palo Alto  
CATHERINE A. SMITH, PhD ..... Portland, Ore  
RUEDIGER THALMANN, MD ..... St Louis  
PAUL H. WARD, MD ..... Los Angeles  
ALFRED L. WEBER, MD ..... Boston

# ANNUAL INDEX

## AUTHORS

- Abdelhammid MM**, suppl 148:17  
**Abramson M**, 239 (obituary)  
**Adachi K**, 738  
**Adkisson GH**, 733  
**Aikawa T**, 817  
**Albert DM**, 108  
**Allen C**, suppl 149:27  
**Anderson DJ**, 571  
**Andreassen UK**, suppl 149:14, 36  
**Applebaum EL**, 801  
**Aprigliano F**, 513, 695  
**Arola M**, 451  
**Arriaga M**, 445, 611, 714  
**Ashoff VM**, suppl 149:28  
**Audouin J**, 577  
  
**Babin RW**, 742  
**Bagger-Sjöbäck D**, 369  
**Balkany T**, 919  
**Barber CS**, 390  
**Barbosa E**, 482  
**Barnes L**, 277  
**Bartal N**, 1005  
**Bartenfelder D**, 155  
**Bar-Ziv J**, 499  
**Batsakis JG**, 87, 162, 236, 323, 416, 501, 588, 674, 756, 835, 929, 1007  
**Bautina E**, 501  
**Beck DL**, 911  
**Bellet PS**, 672  
**Benecke JE Jr**, 678 (letter to editor)  
**Berenholz L**, 179  
**Berg O**, 192  
**Berger S**, 927  
**Bertrand B**, 438  
**Betti P**, 577  
**Biller HF**, 167  
**Blair P**, 74  
**Blaugrund SM**, 249  
**Bluestone CD**, suppl 149 (ed):28, 29, 31, 42  
**Bohigian RK**, 46  
**Böhmer A**, 470  
**Borderon M**, 640  
**Brackmann DE**, 789  
**Brahe Pedersen C**, suppl 146 (ed):5  
**Brasnu D**, 421  
**Bratcher GO**, 413  
**Bratton L**, suppl 149:27  
**Bredenkamp JK**, 51  
**Briner W**, 74  
**Brodsky L**, 62  
**Brook I**, 980  
**Brookler KH**, 420 (letter to editor)  
**Brostoff LM**, suppl 149:28  
**Brown CK**, 432  
**Bryant G**, 74  
**Buckingham RA**, 335  
**Buijs J**, 566  
**Burgess BJ**, 215, 340  
**Butcher RB III**, 621  
**Butsch RW**, 902  
**Byrne MN**, 633  
  
**Calcaterra TC**, 300  
**Callaway E**, 507  
**Camilon FS Jr**, 390  
**Cantekin EI**, suppl 149:28  
**Canterbury D**, suppl 149:23  
  
**Carlsson P**, suppl 151  
**Cass SP**, 221  
**Casselbrant ML**, suppl 149 (ed):28, 31  
**Cassisi NJ**, 419 (letter to editor)  
**Castro DJ**, 51  
**Chaney HR**, 386  
**Chen R**, 286  
**Chernoff WG**, 957  
**Chole RA**, 738  
**Christenson B**, 628  
**Chung IH**, 288  
**Chute PM**, 791  
**Civelek CA**, 155  
**Clark GM**, 871  
**Cleary KR**, 162, 236, 323, 756  
**Cohen AM**, 499  
**Cohen SR**, 281, 427, 509  
**Collet L**, 993  
**Coltrera MD**, 403  
**Conn P**, 108  
**Contencin P**, 124, 625  
**Cooper DS**, 228  
**Coren S**, 977  
**Cortese DA**, 941  
**Cotton RT**, 98, 108  
**Craig HB**, suppl 149:49  
**Crain MR**, 321, 833  
**Crumley RL**, 759  
**Curtin H**, 714  
  
**Da Costa SS**, suppl 148:17  
**Darmstadt GL**, 960  
**Davis PJ**, 403  
**Davis WE**, 160  
**Decker JW**, 38  
**DeMaria TF**, suppl 148:33  
**DeMarino D**, 85  
**Dembowski J**, 902  
**Derkay C**, 386  
**DeSanto LW**, 593  
**Dever G**, suppl 149:25  
**De Villiers E-M**, 55  
**De Vries EJ**, 496  
**Diebold J**, 577  
**Dillier N**, 470  
**DiNunzio G**, 62  
**Dolan KD**, 85, 137, 321, 833  
**Dolata J**, 666  
**Domanowski GF**, 951  
**Donahue KM**, 403  
**D'Ornano G**, 577  
**Drosnes DL**, 183  
**Dubrow TJ**, 297  
**Dudley JP**, 297  
**Duguay MJ**, 197  
**Dulon D**, suppl 148:35  
**Duncavage JA**, 764; 840 (letter to editor)  
**Durrant JD**, 805  
**Duvall AJ III**, 654  
  
**Edell ES**, 689  
**El-Assuooty A**, 249  
**El-Deiry A**, 586  
**Elidan J**, 466, 927  
**Ellermann-Jensen P**, suppl 146:23  
**El-Naggar AK**, 416, 588, 929, 1007  
**Eriksen C**, 703  
**Erlandson B-E**, suppl 151  
**Estill J**, 18; 841 (letter to editor)  
**Estrem SA**, 160  
  
**Felding JU**, suppl 146:19  
**Ferlito A**, 277, 515  
**Fiellau-Nikolajsen M**, suppl 146:7  
**Fink R**, 390  
**Finkelstein Y**, 499  
**Fireman P**, suppl 149:43  
**Fisch G**, suppl 149:27  
**Fisher C**, 155  
**Fleming G**, 543  
**Floru S**, 499  
**Foot PA Jr**, 980  
**Fortune JB**, 38  
**Francois M**, 625  
**Franklin DJ**, suppl 147:30  
**Fredelius L**, 369  
**Freed RE**, 742  
**Freeman F**, 902  
**Friedman M**, 945  
**Fujii M**, 863  
**Fujiwara Y**, 359  
**Funasaka S**, 871  
**Furman JMR**, 504 (letter to editor); 805  
  
**Gacek RR**, 854  
**Galey FR**, 307  
**Gartner M**, 993  
**Gatland DJ**, 562  
**Gato A**, 482  
**Gay I**, 466, 927  
**Ghandour C**, 577  
**Gianoli CJ**, 896  
**Giebink GS**, suppl 148 (ed):4, 6  
**Glynn RJ**, 969  
**Godfrey DA**, 353  
**Goldie P**, 810  
**Gonen B**, 466  
**Gonzalez C**, 553  
**Goodman ML**, 547  
**Gordon C**, 131  
**Goshgarian HG**, 221  
**Goto N**, 863  
**Could WJ**, 249  
**Graham MD**, 923  
**Greco R**, 179  
**Green RP**, 187  
**Gregg JB**, 146  
**Gregor FA**, 69  
**Gristwood RE**, 120  
**Grote JJ**, suppl 144:3, 12  
**Grundfast KM**, 390  
**Guarisco JL**, 621, 896  
**Guillette BJ**, 175  
**Gupta D**, 489  
**Guth PS**, 74  
  
**Hadar T**, 461  
**Håkansson B**, suppl 151  
**Hakstian AR**, 977  
**Hamaguchi Y**, 379  
**Hamlet SL**, 749  
**Hammerschlag PE**, 1010 (book review)  
**Hamoir M**, 438  
**Hara M**, 316  
**Harada H**, 581, 660  
**Harada T**, 379, 654  
**Har-El G**, 640  
**Harkens K**, 137  
**Harris FP**, suppl 147:3, 15, 30  
**Harris JP**, 960

- Harsten G, 628  
 Hartwick RWJ, 674  
 Harvey JE, 419, 505 (letters to editor)  
 Hasegawa S, 205  
 Hashida Y, 827, 984  
 Hatsushika S, 871  
 Hattori M, 211  
 Hawkins DB, 935  
 Hawkins MD, suppl 147:3, 15  
 Healy GB, 889  
 Heldrup J, 628  
 Hellman SA, 791  
 Hellström S, 647, 810  
 Hibi S, 598, 679  
 Hinojosa R, 261; 678 (letter to editor)  
 Hirano M, 363, 598, 679  
 Hirata K, 211  
 Hirsch BE, 714  
 Hitzelberger WE, 789  
 Holinger LD, 89, 105, 684  
 Holmes DK, 98  
 Houck JR, 556  
 House WF, 789  
 Housley G, 74  
 Hsu L, 535  
 Huang M, suppl 148:35  
 Hurbis CG, 105  
 Huser J, 87  
 Hvid G, suppl 149:14, 36  
 Hyams VJ, 327; 1010 (book review)  
 Hybels RL, 46  
 Hyre R, 805  
  
**Ikeda K**, suppl 148:46  
 Ingvarsson L, suppl 149:17  
 Isaacson G, 42, 616  
 Isshiki N, 249  
  
**Jackson CG**, 327  
 Jackson RK, 98  
 Jacobs IN, 167  
 Jacobs JB, 592 (book review)  
 Jacobson GP, 539  
 Jacobsson M, suppl 151  
 Johansson B, 369  
 Johnson GD, 327  
 Johnson JT, 12, 496, 611  
 Jones GC, 941  
 Jones NF, 496  
 Jones NS, 477  
 Jones SC, 80  
 Juhn SK, suppl 148:28; 654  
 Jung TTK, suppl 148:28  
  
**Kagan AR**, 753  
 Kahane JC, 742  
 Kaiser TN, 419, 505 (letters to editor)  
 Kaleida PH, suppl 149:31, 45  
 Kameron DB, 117, 714, 805  
 Kanel KT, 611  
 Karma P, suppl 149:18  
 Kashima HK, 55  
 Kasperbauer JL, 29  
 Kataja M, suppl 149:18  
 Kaufman D, 165, 934 (book reviews)  
 Kawauchi H, suppl 148:33  
 Keamy MF III, 556  
 Keithley EM, 960  
 Kelly MF, 179  
 Kemink JL, 923  
 Kenna MA, suppl 149:38  
 Kerem D, 131  
 Kessis T, 55  
 Khan S, 562  
  
 Khetarpal U, suppl 145; 969  
 Kikuchi K, 863  
 Kim GR, 288  
 Kim H-N, 288  
 Kim JH, 42  
 Kim YH, 288  
 Kirchner JA, 42, 515  
 Kirchner JC, 42  
 Kitahara M, 524  
 Kiyokawa K, 363  
 Kjaerulf E, suppl 146:10  
 Klein JO, suppl 149:27, 46  
 Klis SFL, 566  
 Kmucha ST, 18; 841 (letter to editor)  
 Kobari M, 817  
 Kohut RI, 261  
 Koller D, 155  
 Koltai PJ, 38  
 Komisar A, 730  
 Kondraske G, 902  
 Kong F, 286  
 Konichevsky S, 337  
 Kramer MS, suppl 149:7  
 Kraus DH, 5  
 Krespi YP, 764  
 Krouse JH, 547  
 Kuijpers W, 998  
 Kunpittaya S, 643  
 Kurata T, 359  
 Kurita S, 363  
 Kurs-Lasky M, suppl 149:29, 31  
 Kutcher M, 55  
  
**Laccourreye H**, 421  
 Laccourreye O, 421  
 Ladinsky S, 640  
 La France ND, 155  
 Langman AW, 923  
 Lanza DC, 38  
 Larsen PL, 310  
 Laureano AN, 94  
 Lavertu P, 5  
 Lehtonen O-P, 451  
 Lejdebom L, 192  
 Leonetti JP, 911  
 Levin LS, 55  
 Levine HL, 5  
 Li J-Y, 988  
 Li P, 129  
 Li Z-J, 988  
 Lidén G, suppl 151  
 Lildholdt T, suppl 146:12  
 Lim DJ, suppl 148:33  
 Lin P-T, 249  
 Lindberg S, 666  
 Lindeman RC, 112  
 Lindgren BR, suppl 148:23  
 Linthicum FH Jr, 307  
 Lippy WH, 256  
 Lipton RJ, 396  
 Littlewood SC, 621  
 Liu W, 286  
 Liu Z, 454  
 Löfgren B, 628  
 Lonsbury-Martin BL, suppl 147:3, 15, 30  
 Lous J, suppl 146:14  
 Loveland CJ, 146  
 Lucente FE, 1  
 Lufkin R, 753  
 Luna MA, 835, 929, 1007  
 Lundgren K, suppl 149:17, 42  
 Luntz M, 201, 529  
 Lutz CK, 12  
  
 Mafee MF, 709  
 Majima Y, 211  
 Mandel EM, suppl 149:29  
 Mangham CA, 112; 504 (letter to editor)  
 Manning S, suppl 149:25  
 Marbaix E, 438  
 Marchant CD, suppl 149:33  
 Marshak G, 730  
 Martin GK, suppl 147:3, 15, 30  
 Martinez SA, 80  
 Marvan H, 1005  
 Matsune S, 984  
 Matt BH, 672  
 Matz CJ, suppl 148:39; 911  
 Maves MD, 85, 321  
 May M, 304  
 McCabe BF, 586  
 McCaffrey TV, 396  
 McClure JA, 330  
 McDonough JM, 556  
 McKenzie RA, 592, 934 (book reviews)  
 McLean WC, 698  
 McNab Jones RF, 562  
 McRae RDR, 562  
 Medendorp SV, 5  
 Melamed Y, 131  
 Menard M, 421  
 Mendelowitz N, 131  
 Mendenhall WM, 419 (letter to editor)  
 Merchant SN, 403  
 Mercke U, 666  
 Meredith APd'E, 733  
 Metson R, 543  
 Mickel RA, 51  
 Mikhael MA, 234  
 Miller R, 74, 896  
 Miller S, suppl 148:28  
 Million RR, 419 (letter to editor)  
 Mimouni M, 678 (letter to editor)  
 Møller K, 310  
 Møller MB, 724  
 Montgomery SK, suppl 150  
 Montgomery WW, suppl 150  
 Moore DM, 300  
 Moore PJ, 722  
 Morgon A, 993  
 Morizono T, suppl 148:42, 46  
 Moro JA, 482  
 Morris HL, 432  
 Moss RM, 643  
 Moulin A, 993  
 Mueller DP, 85  
 Mukamel M, 678 (letter to editor)  
 Murakami Y, 782  
 Myer CM III, 98, 413, 672  
 Myers EN, 12, 277, 496, 611, 827  
  
**Naccari AP**, 592 (book review)  
 Naclerio RM, 155  
 Nadol JB Jr, 215, 340, 547, 969  
 Nakamura H, 205  
 Nakano Y, 205  
 Nakashima M, 491  
 Nam HK, 234  
 Narcy P, 124, 625  
 Naunton RF, suppl 148:12  
 Neel HB III, 29, 941  
 Nelson JD, suppl 149:41  
 Nelson RA, 789  
 Nelson RJ, 749  
 Newman CW, 539  
 Nicolai P, 515  
 Nienhuis DM, 689  
 Nolph MB, 80

- Nomura Y, 316  
 Norris C, 74  
 Nozue M, 491  
 Nozza RJ, suppl 149:34  
  
**O'Daniel TG**, 80  
 Ohlms LA, suppl 147:30  
 Ohtani I, 817  
 Olsen J, suppl 146 (ed):5  
 Olson NR, 507  
 Ophir D, 326 (letter to editor); 337, 730  
 Ossoff RH, 764  
 Otto SR, 789  
 Oye RK, 543  
  
**Pannbacker M**, 841 (letter to editor)  
 Paparella MM, suppl 148:6, 17, 23  
 Pappas DG, 165, 592, 934  
     (book reviews)  
 Paradise JL, suppl 149:47  
 Parisier SC, 791  
 Park IY, 288  
 Park YM, suppl 148:28  
 Parkin JL, 796  
 Parnes LS, 330, 957  
 Parnes SM, 38  
 Parsons DS, 892  
 Parsons JT, 419 (letter to editor)  
 Parving A, suppl 146:19  
 Pastor F, 482  
 Patterson K, 877  
 Patterson RL, 749  
 Peng Y, 454  
 Perez CA, 504 (letter to editor)  
 Perry CJ, 175  
 Peters TA, 998  
 Petitjean M, 80  
 Petruzzelli GJ, 496  
 Pierce LC, 146  
 Piollet H, 753  
 Poe DS, 327  
 Polonovski J-M, 625  
 Poppendieck J, 349  
 Prakash UBS, 689  
 Pransky S, 390  
 Prellner K, 628  
 Prichard AJN, 477  
 Puhakka H, 451  
 Pukander J, suppl 149:18  
  
**Radomskij P**, 477  
 Ramaekers FCS, 998  
 Rarey KE, 877  
 Reed HT, 74  
 Reilly JS, 273  
 Reinisch L, 553  
 Reisser C, 340  
 Remacle M, 438  
 Represa JJ, 482  
 Reynolds R, 297  
 Rice DH, 228  
 Ringdahl A, suppl 151  
 Risey J, 74  
 Rizer FM, 256  
 Rizzo KA, 179  
 Roark RM, 902  
 Roberts JK, 5  
 Robinson N, 703  
 Rockette HE, suppl 149:11, 29, 31  
 Rontal E, 605  
 Rontal M, 605  
 Rosen A, 730  
 Rosenfeld RM, 187  
 Rosner B, suppl 149:27  
  
 Rosowski JJ, 403  
 Ross CD, 353  
 Rothstein SG, 1010 (book review)  
 Rubin J, 117  
 Rubio JA, 353  
 Ruuskanen O, 451  
 Rybak LP, 94  
  
**Sadé J**, 142, 201, 529  
 Safadi I, 539  
 Sahni R, suppl 148:17  
 Saito K, 316  
 Saito Y, 782  
 Sakagami M, 654  
 Sakakura K, 379  
 Sakakura Y, 211, 379  
 Sanders I, 167  
 Sando I, suppl 148:13; 827, 984  
 Santos V, 640  
 Sarov B, 461  
 Sarov I, 461  
 Sasaki CT, 515  
 Sato K, 363  
 Sauris E, 791  
 Schachern PA, suppl 148:17, 23  
 Schacht J, suppl 148:35  
 Schaefer SD, 902  
 Scheetz MD, suppl 149 (assoc ed)  
 Scher RL, 698  
 Schild JA, 709, 945  
 Schlund D, suppl 148:28  
 Schmidt S-H, 647  
 Schneider KL, 165 (book review)  
 Schoenfeld PS, 1  
 Schrader M, 349  
 Schuknecht HF, suppl 145; 843  
 Schultz GS, 80  
 Schuring AG, 256  
 Schuring LT, 256  
 Schusterman MA, 496  
 Scogna JE, 69  
 Scott RE, 29  
 Sculerati N, 445  
 Sederberg-Olsen J, suppl 146:9  
 Sessions DG, 419, 505  
     (letters to editor); 633  
 Shah K, 55  
 Shapshay SM, 46, 764  
 Shatz A, 142  
 Shepherd RK, 871  
 Shestak K, 496  
 Shi S-R, 817  
 Shochina M, 466  
 Shore SE, 571  
 Shun ZT, 129  
 Shupak A, 131  
 Shurin PA, suppl 149:33  
 Siddiqui SY, 62  
 Sidi J, 461  
 Sipilä M, suppl 149:18  
 Sisson GA Sr, 764  
 Slavitt DH, 396  
 Smith M, 553  
 Smith PG, 911  
 Smoorenburg GF, 566  
 Snashall SE, 477  
 Sorasuchart A, 643  
 Spandow O, 647  
 Spitzer O, 131  
 Squire R, 62  
 Stagner BB, suppl 147:3, 15  
 Stangerup S-E, suppl 149:14, 36  
 Starobin S, suppl 149:27  
 Steckel RJ, 753  
  
 Steglich-Petersen J, suppl 146:9, 22  
 Stenstrom C, suppl 149:17  
 Stewart J, suppl 149:25  
 Stewart JL, suppl 149:20  
 Stool SE, suppl 149:25, 49, 51  
 Stringer SP, 419 (letter to editor)  
 Stringham P, suppl 149:27  
 Sun A-H, 988  
 Suzuka Y, 843  
 Suzuki S, 205  
  
**Taira T**, 249  
 Takahara T, suppl 149:42  
 Takahashi H, suppl 148:13; 714, 827, 984  
 Takahashi M, 883  
 Takasaka T, suppl 149:13  
 Takeuchi K, 211  
 Takiguchi Y, 491  
 Talmi YP, 499; 840 (letter to editor)  
 Tanaka S, 598, 679  
 Tanaka Y, 598  
 Tao Z, 454  
 Tarlin L, suppl 149:27  
 Teele DW, suppl 149:27  
 Tegtmeier CJ, 698  
 Ten Cate WJF, 877  
 Thompson JW, 281, 427  
 Thomsen JR, 386  
 Tjellström A, suppl 151  
 Todd NW Jr, suppl 149:22  
 Tong YC, 871  
 Tonnaer ELGM, 998  
 Tos M, suppl 146:6, 18, 26;  
     suppl 149:14, 36, 42; 310  
 Tovi F, 461  
 Tucker HM, 5, 778  
 Tully R, 160  
  
**Umemura K**, 491  
  
**Valvassori GE**, 801  
 Van Blitterswijk CA, suppl 144:3  
 Van Demark DR, 432  
 Van den Eeckhaut J, 438  
 Vaughan CW, 951  
 Venables WN, 120  
 Venkatesan TK, 945  
 Vennix PPCA, 998  
 Vesteraager V, suppl 146:22  
 Viala P, 124, 625  
 Viry B, 577  
 Vishwakarma SK, 489  
  
**Wagener M**, 117  
 Wagner RL, 12, 496  
 Wald ER, suppl 149:40  
 Wang RC, 791  
 Wang T-Y, 988  
 Watanabe K, 581, 660  
 Watson B, 902  
 Weber B, 349  
 Webster PM, 197  
 Weeks D, suppl 148:28  
 Weinstein GS, 304, 421  
 Weiss MH, 791  
 Welsh JJ, 69  
 Welsh LW, 69  
 Wenig BL, 709  
 Wersäll J, 369  
 Wiatrak BJ, 413  
 Wiet CJ, 353  
 Wiler JA, 571  
 Williams GW, suppl 149:9  
 Wing P, 38

- Wolff AP, 234  
 Wolfson P, 179  
 Wong O, suppl 148:28  
 Woo P, 772  
 Wood BG, 5  
 Work WP, 839 (obituary)  
 Wroblewski SKM, 432  
 Wu B-L, 167
- Xenellis JE, 307  
 Xiao J, 454  
 Xiao S-Z, 988
- Yamagishi M, 205; 326 (letter to editor)
- Yamagiwa M, 379  
 Yamaguchi N, 827, 984  
 Yanagihara N, 359  
 Yanagisawa E, 18; 841 (letter to editor)  
 Yang Y, 454  
 Yazawa Y, 524  
 Yerman HM, 89  
 Yokoyama K, 660  
 Yoon TH, suppl 148:17, 23  
 Yoshida T, 679  
 Yu VL, 117  
 Yuh WTC, 85
- Zachau-Christiansen B, suppl 146:25  
 Zalzal GH, 386  
 Zeitels SM, 951  
 Zeng Q, 454  
 Zhang KW, 129  
 Zhao S, 454  
 Zhao YH, 129  
 Zhao Y-S, 535  
 Zhu X, 286, 535  
 Ziegler T, 451  
 Zimmermann C, 843  
 Zogg J, 80  
 Zohar Y, 499; 840 (letter to editor)  
 Zwillenberg DA, 179, 183, 703

## SUBJECTS

- Acoustic immittance**  
 Relations to acoustic immittance and stimulus frequency and spontaneous otoacoustic emissions in normally hearing subjects, suppl 147:15
- Acoustic overstimulation**  
 Time-related changes in guinea pig cochlea after acoustic overstimulation, 369
- Addison's disease**  
 Ossified auricle in Addison's disease, 499
- Adenoid cystic carcinoma**  
 Neck dissection for laryngeal adenoid cystic carcinoma: is it indicated? 277
- Adenoids**  
 Tonsillectomy and adenoidectomy: changing trends, 187  
 Velar-pharyngeal status in cleft palate patients with expected adenoidal involution, 432
- Aerodigestive tract**  
 Management of sharp and penetrating foreign bodies of upper aerodigestive tract, 684  
 Proliferation and differentiation characteristics of normal human squamous mucosal cells of upper aerodigestive tract, 29
- Alaryngeal speech**  
 Surgeons' reported attitudes and practices regarding alaryngeal speech, 197
- Allergy**  
 Allergic rhinitis and its potential relation to otitis media, suppl 149:43
- Amino-oxyacetic acid**  
 Evaluation of amino-oxyacetic acid as palliative in tinnitus, 74
- Ampulla**  
 Morphometry of ampullar dark cells, 877
- Amyloidosis**  
 Laryngeal amyloidosis in child, 105
- Anatomy**  
 Anomaly of hypoglossal nerve: embryologic, anatomic, and surgical considerations, 304  
 Variability of surgical anatomy of neurovascular complex of cerebellopontine angle, 288
- Anesthesia**  
 Malignant hyperthermia in otolaryngologic patient: prospective anesthetic and surgical management of eight children, 297
- Angiography**  
 Role of angiography in management of refractory epistaxis, 69
- Arachidonic acid**  
 Effect of arachidonic acid on inner ear blood flow measured with laser Doppler flowmeter, 491
- Arachnoid granulation**  
 Arachnoid granulation cerebrospinal fluid otorrhea, 854
- Artery**  
 Clinical diagnosis of anterior inferior cerebellar artery thrombosis. Autopsy and temporal bone histopathologic study, 261
- Arthrogryposis multiplex congenita**  
 Severe otolaryngologic manifestations of arthrogryposis multiplex congenita, 94
- Aryepiglottic fold**  
 Aryepiglottic fold excision for treatment of severe laryngomalacia, 625
- Arytenoids**  
 Distribution of elastic cartilage in arytenoids and its physiologic significance, 363  
 Endoscopic laser arytenoidectomy revisited, 764  
 Extraluminal arytenoid reconstruction: laryngeal framework surgery applied to pediatric problem, 616
- Aspartate aminotransferase**  
 Quantitative distributions of aspartate aminotransferase and glutaminase activities in guinea pig cochlea, 353
- Aspiration**  
 Prevention of aspiration in infants and young children: federal regulations, 273
- Atelectasis**  
 Daily fluctuations of middle ear pressure in atelectatic ears, 201
- Biocompatibility**  
 Biocompatibility of clinically applied hydroxylapatite ceramic, suppl 144:3
- Bone-anchored hearing system**  
 Ten years of experience with Swedish bone-anchored hearing system, suppl 151
- Book Reviews**  
 Adams GL, Boies LE Jr, Hilger PA. *Boies Fundamentals of Otolaryngology*, 1010  
 Alling CC III, Osborn DB, eds. *Maxillofacial Trauma*, 592  
 Bess FH, ed. *Hearing Impairment in Children*, 592  
 Friedmann I, Ferlito A. *Granulomas and Neoplasms of the Larynx*, 1010



- Harrison RV. *The Biology of Hearing and Deafness*, 934  
 Jahn AF, Santos-Sacchi J, eds. *Physiology of the Ear*, 934  
 Kleinsasser O. *Tumors of the Larynx and Hypopharynx*, 165  
 Oswal VH, Kashima HK, Flood LM, eds. *The CO<sub>2</sub> Laser in Otolaryngology and Head and Neck Surgery*, 165  
 Panje WR, Schuller DE, Shagets FW. *Musculocutaneous Flap Reconstruction of Head and Neck*, 934  
 Pirodda E, Pompeiano O, eds. *Neurophysiology of the Vestibular System*, 1010  
 Suzuki J-I, ed. *Middle Ear Implant: Implantable Hearing Aids*, 165  
 Valvassori GE, Buckingham RA, Carter BL, Hanafee WN, Mafee MF. *Head and Neck Imaging*, 592
- Breast-feeding**  
 Breast-feeding as prevention for otitis media, suppl 149:45
- Cancer**  
 Cancer of tongue base treated by transpharyngeal approach, 300  
 Early supraglottic cancer, 593  
 Effect of bleomycin on hematoporphyrin derivative phototherapy of solid tumors, 941  
 Endoscopic management of early supraglottic cancer, 951
- Candidiasis**  
 Otitic candidiasis in children: evaluation of problem and effectiveness of ketoconazole in 10 patients, 427
- Carcinoid tumor**  
 Carcinoid tumors of middle ear, 547
- Carcinoma**  
 Human leukocyte antigens -A, -B, -C, and -DR and nasopharyngeal carcinoma in northern China, 286  
 Laser excision of early vocal cord carcinoma: indications, limitations, and precautions, 46  
 Magnetic resonance imaging to distinguish tumor persistence from delayed fibrosis in carcinoma of tongue and floor of mouth, 753  
 Photoradiation therapy of animal tumors and nasopharyngeal carcinoma, 454  
 Squamous carcinomas with glandlike (adenoid) features, 87  
 Staging proposal for external auditory meatus carcinoma based on preoperative clinical examination and computed tomography findings, 714  
 Supraglottic carcinoma: patterns of recurrence, 12  
 Undifferentiated carcinoma with lymphoid stroma of major salivary glands, 236
- Cartilage**  
 Distribution of elastic cartilage in arytenoids and its physiologic significance, 363  
 Histologic study of eustachian tube cartilage with and without congenital anomalies: preliminary study, 984
- Cervical**  
 Cervical versus Plastipore in tympanoplasty: randomized prospective trial, 112
- Cerebellopontine angle**  
 Variability of surgical anatomy of neurovascular complex of cerebellopontine angle, 288
- Cervical mass**  
 Approach for oxygenation of newborn with airway obstruction due to cervical mass, 179
- Children**  
 New set of pediatric laryngoscopes, 892  
 Otitis media in first year of life, suppl 149:33  
 Tracheotomy in first year of life, 896
- Cholesteatoma**  
 Factors influencing probability of residual cholesteatoma, 120  
 Staging for cholesteatoma in child, adolescent, and adult, 256
- Cholesterol granuloma**  
 Cholesterol granuloma presenting in ear canal, 672
- Chondrosarcoma**  
 Laryngeal chondrosarcoma: incidence, pathology, biological behavior, and treatment, 515
- Cleft**  
 Diagnosis and management of cleft larynx. Literature review and case report, 703  
 Laryngeal and laryngotracheoesophageal clefts: role of early surgical repair, 98  
 Otitis media in infants and children with cleft palate: current epidemiologic issues, suppl 149:47  
 Velar-pharyngeal status in cleft palate patients with expected adenoidal involution, 432  
 Ventral cleft of larynx: rare congenital laryngeal defect, 281
- Cochlea**  
 Age-related changes in evoked otoacoustic emissions, 993  
 Auditory brain stem implant: effect of tumor size and preoperative hearing level on function, 789  
 Bilateral semicircular canal aplasia with near-normal cochlear development. Two case reports, 957  
 Changes in the cochlear iron enzymes and adenosine triphosphatase in experimental iron deficiency, 988  
 Endoscopy of cochlea during cochlear implantation, 919  
 Evoked vertex and inferior colliculus responses to electrical stimulation of cochlear nucleus, 571  
 Immuno-electron microscopic study of keratin distribution in cochlea using monoclonal antibody, 817  
 Percutaneous pedestal in cochlear implantation, 796  
 Quantitative distributions of aspartate aminotransferase and glutaminase activities in guinea pig cochlea, 353  
 Time-related changes in guinea pig cochlea after acoustic overstimulation, 369
- Cold, dry air**  
 Decrease in xenon clearance during response to cold, dry air: problems of interpretation, 155
- Collagen**  
 Correction of glottic insufficiency by collagen injection, 438
- Complications**  
 Cochlear implant flap complications, 791  
 Incidence and prevalence of complications of otitis media, suppl 149:38  
 Medical complications in total laryngectomy: incidence and risk factors, 611
- Congenital diseases**  
 Otitis media in association with various congenital diseases. Preliminary study, suppl 148:13
- Craniofacial disorders**  
 Craniofacial disorders and otitis media, suppl 149:51
- Craniopharyngioma**  
 Nasopharyngeal craniopharyngioma. Case report and literature review, 633
- Cricohyoidoepiglottopexy**  
 Supracricoid laryngectomy with cricohyoidoepiglottopexy: partial laryngeal procedure for glottic carcinoma, 421
- Cricopharyngeus**  
 Interpreting sounds of swallowing: fluid flow through cricopharyngeus, 749

- Cyst**  
 Bronchogenic cyst with tracheal involvement, 89  
 Lymphoepithelial cysts of parotid region: "new face" on old lesion, 162  
 Mediastinal bronchogenic cyst, 413
- Cytomegalovirus**  
 Effects of cyclophosphamide on pathogenesis of cytomegalovirus-induced labyrinthitis, 960
- Danish Consensus Conference**  
 Danish approach to treatment of secretory otitis media. Report of Danish Consensus Conference, Copenhagen, 1987, suppl 146
- Dental infection**  
 Cervical necrotizing fasciitis: uncommon sequela to dental infection, 643
- Development**  
 Bilateral semicircular canal aplasia with near-normal cochlear development. Two case reports, 957  
 Developmental consequences of hearing loss in children with secretory otitis media, suppl 146:14  
 Patterns of epithelial cell death during early development of human inner ear, 482
- DeWeese, David D.** Obituary, 839
- Distortion product emissions**  
 Distortion product emissions in humans, suppl 147
- Dysgeusia**  
 Temporal lobe tumor manifested by localized dysgeusia, 586
- Economics (otitis media)**  
 Economic consequences of different types of treatment, suppl 146:23  
 Organization of treatment, suppl 146:22
- Electrophysiology**  
 Quantification of relation between electrophysiologic and morphologic changes in experimental endolymphatic hydrops, 566
- Endolymph**  
 Experimental endolymphatic hydrops: are cochlear and vestibular symptoms caused by increased endolymphatic pressure? 470
- Endotoxin**  
 Endotoxin and lysosomal protease activity in acute and chronic otitis media with effusion, 379  
 Role of middle ear endotoxin in inner ear inflammatory response and hydrops: long-term study, suppl 148:33
- Epidermal growth factor**  
 Epidermal growth factor binding and action on tympanic membranes, 80
- Epiglottis**  
 Epiglottic laryngoplasty for repair of blunt laryngopharyngeal trauma, 709
- Epistaxis**  
 Role of angiography in management of refractory epistaxis, 69
- Esophagus**  
 Removal of blunt foreign bodies from esophagus, 935  
 Vascular injury following foreign body perforation of esophagus. Review of literature and report of case, 698
- Etiology of otitis media**  
 Causes of disease, suppl 146:6
- Hereditary and environmental factors in otitis media**, suppl 149:46
- Evoked response**  
 Evoked vertex and inferior colliculus responses to electrical stimulation of cochlear nucleus, 571
- External ear**  
 Ossified auricle in Addison's disease, 499
- Facial nerve**  
 Facial nerve monitoring in otologic surgery: clinical indications and intraoperative technique, 911
- Fistula**  
 Inner ear decompression sickness combined with fistula of round window. Case report, 733
- Foreign body**  
 Bronchial foreign bodies: uncommon way of entry, 695  
 Management of sharp and penetrating foreign bodies of upper aerodigestive tract, 684  
 Management of tracheobronchial foreign bodies in children: update, 889  
 Removal of blunt foreign bodies from esophagus, 935  
 Vascular injury following foreign body perforation of esophagus. Review of literature and report of case, 698
- Gas**  
 Middle ear as gas pocket, 529  
 Middle ear gas generation in myringoplasties, 335
- Glasgow Coma Scale**  
 Predictive value of Glasgow Coma Scale for tracheotomy in head-injured patients, 38
- Glottis**  
 Correction of glottic insufficiency by collagen injection, 438  
 Effects of lateral manual compression upon glottic incompetence: objective evaluations, 249  
 Glottographic analysis of phonation in excised canine larynx, 396
- Glutaminase**  
 Quantitative distributions of aspartate aminotransferase and glutaminase activities in guinea pig cochlea, 353
- Goblet cell**  
 Goblet cell density in nasal polyps, 310
- Hair cells**  
 Age-related changes in evoked otoacoustic emissions, 993  
 Morphology of synapses at base of hair cells in organ of Corti of chimpanzee, 215
- Head-shaking test**  
 Sensitivity and specificity of head-shaking test for detecting vestibular system abnormalities, 539
- Hearing**  
 Audiologic considerations: beyond threshold, suppl 149:34  
 Basic properties in normally hearing subjects, suppl 147:3  
 Conversion between systems of hearing handicap measurement: empirically determined computational procedure, 977  
 Idiopathic sudden sensorineural hearing loss and postnatal viral labyrinthitis: statistical comparison of temporal bone findings, 969  
 Influence of sensorineural hearing loss, suppl 147:30  
 Otitis media in school for deaf children: 8-year study, suppl 149:49
- HEBP**  
 Inhibition of osteoclast recruitment at local site by 1-hydroxy-



- ethylidene-1,1-bisphosphonate (HEBP), 738
- Helium**  
Effect of helium concentration on experimental upper airway obstruction, 556
- Hemangioma**  
Malignant transformation in laryngeal hemangioma, 562
- Hemorrhagic shock**  
Changes in capillaries of stria vascularis after hemorrhagic shock, 660
- Histamine**  
Histamine stimulation of mucociliary activity in rabbit maxillary sinus, 666
- Histology**  
Histologic study of eustachian tube cartilage with and without congenital anomalies: preliminary study, 984  
Histology of Isshiki thyroplasty type I, 42  
Histopathologic study of otitis media in individuals with head and neck tumors, 827  
In search of pathologic correlates for hearing loss and vertigo in Paget's disease. Clinical and histopathologic study of 26 temporal bones, suppl 145
- Historical perspective**  
Historical perspectives and concepts in otitis media research at University of Minnesota, suppl 148:6
- Human leukocyte antigen**  
Human leukocyte antigens -A, -B, -C, and -DR and nasopharyngeal carcinoma in northern China, 286
- Hydrocortisone**  
Hydrocortisone delay of tissue repair of experimental tympanic membrane perforations, 647
- Hydrops**  
Bilateral endolymphatic hydrops in Meniere's disease: review of temporal bone autopsies, 524  
Delayed endolymphatic hydrops and its relationship to Meniere's disease, 843  
Experimental endolymphatic hydrops: are cochlear and vestibular symptoms caused by increased endolymphatic pressure? 470  
Immunoglobulin E and circulating immune complexes in endolymphatic hydrops, 535  
Quantification of relation between electrophysiologic and morphologic changes in experimental endolymphatic hydrops, 566
- Hydroxylapatite**  
Biocompatibility of clinically applied hydroxylapatite ceramic, suppl 144:3  
Reconstruction of middle ear with hydroxylapatite implants: long-term results, suppl 144:12
- Hyperthermia**  
Malignant hyperthermia in otolaryngologic patient: prospective anesthetic and surgical management of eight children, 297
- Imaging**  
Correlative imaging of sphenoid dysplasia accompanying neurofibromatosis, 137  
Further studies on effects of magnetic resonance imaging fields on middle ear implants, 801  
See also Imaging Case Study of the Month
- Imaging Case Study of the Month**  
Adult rhabdomyoma of base of tongue, 234  
Cholesterol granuloma presenting in ear canal, 672
- Internal auditory canal enlargement in Paget's disease appearing as bilateral acoustic neuromas, 833  
Magnetic resonance imaging to distinguish tumor persistence from delayed fibrosis in carcinoma of tongue and floor of mouth, 753  
Maxillary sinus mucocele, 321  
Mediastinal bronchogenic cyst, 413  
Multiple paragangliomas, 85  
Ossified auricle in Addison's disease, 499  
Retropharyngeal abscess caused by traumatic perforation of hypopharynx by fishbone, 927  
Rhinocephalic mucormycosis: computed tomographic imaging of cavernous sinus thrombosis, 160  
Spontaneous pneumopericardium and pneumomediastinum, 1005  
Temporal lobe tumor manifested by localized dysgeusia, 586
- Imbalance**  
Imbalance and chronic secretory otitis media in children: effect of myringotomy and insertion of ventilation tubes on body sway, 477
- Immunity**  
Immuno-electron microscopic study of keratin distribution in cochlea using monoclonal antibody, 817  
Immunoglobulin E and circulating immune complexes in endolymphatic hydrops, 535  
Immunohistochemical examination of olfactory mucosa in patients with olfactory disturbance, 205  
Immunohistochemical interpretation of early epithelial disorders of pyriform sinus, 782  
Immunohistochemical study of cytokeratin expression in normal and pathologic middle ear mucosa of rat, 998  
Immunohistologic findings in otosclerosis, 349  
Outer hair cells as potential targets of inflammatory mediators, suppl 148:35  
Responses to rubella, tetanus, and diphtheria vaccines in otitis-prone and non-otitis-prone children, 628
- Implant**  
Auditory brain stem implant: effect of tumor size and preoperative hearing level on function, 789  
Cochlear implant flap complications, 791  
Dimensions of scala tympani in human and cat with reference to cochlear implants, 871  
Endoscopy of cochlea during cochlear implantation, 919  
Further studies on effects of magnetic resonance imaging fields on middle ear implants, 801  
Percutaneous pedestal in cochlear implantation, 796  
Ten years of experience with Swedish bone-anchored hearing system, suppl 151
- Incidence of otitis media**  
Changes in hearing status of Alaskan natives, suppl 149:23  
Current status of otitis media in American Indian population, suppl 149:20  
Epidemiology of otitis media in Boston children observed from birth to 7 years of age, suppl 149:27  
Epidemiology of otitis media with effusion in Japan, suppl 149:13  
Estimating risk of acute otitis media among urban children, suppl 149:18  
Incidence, prevalence, and natural history of otitis media in children in Pittsburgh, suppl 149:28  
Occurrence of acute otitis media in children: cohort studies in urban population, suppl 149:17  
Otitis media in four populations of Arizona Indian children, suppl 149:22  
Otitis Oceania: middle ear disease in the Pacific Basin, suppl 149:25  
Point prevalence of secretory otitis at different ages, suppl 149:14

- Inner ear**  
 Effect of arachidonic acid on inner ear blood flow measured with laser Doppler flowmeter, 491  
 Inner ear decompression sickness combined with fistula of round window. Case report, 733  
 Patterns of epithelial cell death during early development of human inner ear, 482
- Input immittance**  
 Cadaver middle ears as models for living ears: comparisons of middle ear input immittance, 403
- Intubation**  
 Endotracheal tube safety with erbium:yttrium aluminum garnet laser, 553  
 Laryngeal granulomatous polyp after short-term intubation of child, 183  
 Prospective study of subglottic stenosis in intubated neonates, 390  
 Quantitative study of early effects of tracheotomy and endotracheal intubation on rabbit tracheobronchial tree, 62
- Iron**  
 Changes in the cochlear iron enzymes and adenosine triphosphatase in experimental iron deficiency, 988  
 Importance of iron repletion in management of Plummer-Vinson syndrome, 51
- Irrigation**  
 Aural irrigation with water: potential pathogenic mechanism for inducing malignant external otitis? 117
- Jejunal interposition**  
 Jejunal interposition for repair of stricture or fistula after laryngectomy, 496
- Ketoconazole**  
 Otitis candidiasis in children: evaluation of problem and effectiveness of ketoconazole in 10 patients, 427
- Labyrinth**  
 Effects of cyclophosphamide on pathogenesis of cytomegalovirus-induced labyrinthitis, 960  
 Head stability and gaze during vertical whole-body oscillations, 883  
 Histopathologic study of perilymph-suctioned labyrinth, 316  
 Idiopathic sudden sensorineural hearing loss and postnatal viral labyrinthitis: statistical comparison of temporal bone findings, 969  
 Increased glial fibrillary acidic protein immunoreactivity in astrocytes within lateral vestibular nucleus of cat following labyrinthectomy and vestibular neurectomy, 221
- Laryngectomy**  
 Jejunal interposition for repair of stricture or fistula after laryngectomy, 496  
 Use of nasogastric tube after total laryngectomy: is it truly necessary? 513
- Laryngoscope**  
 New set of pediatric laryngoscopes, 892
- Larynx**  
 Aryepiglottic fold excision for treatment of severe laryngomalacia, 625  
 Diagnosis and management of cleft larynx. Literature review and case report, 703  
 Effect of laryngeal stenting in rabbit model, 108  
 Extraluminal arytenoid reconstruction: laryngeal framework surgery applied to pediatric problem, 616  
 Laryngeal amyloidosis in child, 105  
 Laryngeal chondrosarcoma: incidence, pathology, biological behavior, and treatment, 515  
 Laryngeal framework reconstruction with miniplates, 772
- Malignant transformation in laryngeal hemangioma, 562**  
**Medical complications in total laryngectomy: incidence and risk factors, 611**  
**Melanosis of larynx, 640**  
**Nonclosure of pharyngeal muscle after laryngectomy, 507**  
**Primary lymphoplasmacytic lymphoma of larynx: rare localization of MALT-type lymphoma, 577**  
**Pulmonary parameters in children after laryngotracheal reconstruction, 386**  
**Supracricoid laryngectomy with cricohyoidoepiglottopexy: partial laryngeal procedure for glottic carcinoma, 421**  
**Surgical treatment for laryngeal paralysis in infants and children, 124**  
**Ventral cleft of larynx: rare congenital laryngeal defect, 281**  
*See also* Glottis, Vocal fold
- Laser**  
 Endoscopic laser arytenoidectomy revisited, 764  
 Endotracheal tube safety with erbium:yttrium aluminum garnet laser, 553  
 Laser excision of early vocal cord carcinoma: indications, limitations, and precautions, 46
- Lateral manual compression**  
 Effects of lateral manual compression upon glottic incompetence: objective evaluations, 249
- Lermoyez's syndrome**  
 Lermoyez's syndrome: histopathologic report of case, 307
- Letters to the Editor, 326, 419, 420, 504, 505, 678, 840, 841**
- Ligneous conjunctivitis**  
 Ligneous conjunctivitis: ophthalmic disease with potentially fatal tracheobronchial obstruction. Laryngeal and tracheobronchial features, 509
- Lung**  
 Bronchial foreign bodies: uncommon way of entry, 695  
 Bronchogenic cyst with tracheal involvement, 89  
 Management of tracheobronchial foreign bodies in children: update, 889  
 Minicricothyrotomy for tracheobronchial toilet, 337  
 Pulmonary parameters in children after laryngotracheal reconstruction, 386  
 Spontaneous pneumopericardium and pneumomediastinum, 1005
- Lymph**  
 Lymphoepithelial cysts of parotid region: "new face" on old lesion, 162  
 Otolaryngologic management of posttransplant lymphoproliferative disease in children, 445  
 Primary lymphoplasmacytic lymphoma of larynx: rare localization of MALT-type lymphoma, 577
- Lysosomal protease**  
 Endotoxin and lysosomal protease activity in acute and chronic otitis media with effusion, 379
- Malignancy**  
 Aural irrigation with water: potential pathogenic mechanism for inducing malignant external otitis? 117  
 Nonsquamous cell malignancies of paranasal sinuses, 5
- Mastoid**  
 Correlation between mastoid pneumatization and position of lateral sinus, 142
- Melanosis**  
 Melanosis of larynx, 640
- Meniere's disease**  
 Bilateral endolymphatic hydrops in Meniere's disease: review

- of temporal bone autopsies, 524
  - Delayed endolymphatic hydrops and its relationship to Meniere's disease, 843
  - Lermoyez's syndrome: histopathologic report of case, 307
  - Titration streptomycin therapy for bilateral Meniere's disease. Follow-up report, 923
  - Vestibular recruitment in Meniere's disease, 805
- Metastases
  - Metastases to major salivary glands, 501
- Methodology
  - Analysis of repeated measures on same or matched experimental unit(s) in medical research, suppl 149:9
  - Conversion between systems of hearing handicap measurement: empirically determined computational procedure, 977
  - Design considerations in studies of otitis media, suppl 149:11
  - Issues in disease identification, suppl 149:7
  - Methods of treatment available, suppl 146:12
- Microbiology
  - Emergence of *Branhamella catarrhalis* as major cause of acute otitis media in Dallas, Texas, suppl 149:41
  - Epidemiology of microbiology of acute otitis media, suppl 149:40
  - Frequency of bacteria isolated from middle ear effusions of children from United States, Finland, Japan, and Denmark, suppl 149:42
  - Microbiology of "normal" tonsils, 980
- Microvascular decompression
  - Microvascular decompression by retrosigmoid approach for trigeminal neuralgia: experience in 200 patients, 129
  - Results of microvascular decompression of eighth nerve as treatment for disabling positional vertigo, 724
- Middle ear
  - Cadaver middle ears as models for living ears: comparisons of middle ear input immittance, 403
  - Carcinoid tumors of middle ear, 547
  - Daily fluctuations of middle ear pressure in atelectatic ears, 201
  - Immunohistochemical study of cytokeratin expression in normal and pathologic middle ear mucosa of rat, 998
  - Middle ear as gas pocket, 529
  - Middle ear gas generation in myringoplasties, 335
  - Middle ear mucosa in Ramsay Hunt syndrome, 359
- Miniricthyrotomy
  - Miniricthyrotomy for tracheobronchial toilet, 337
- Miniplate
  - Laryngeal framework reconstruction with miniplates, 772
- Montgomery® prosthesis
  - Manual for use of Montgomery® laryngeal, tracheal, and esophageal prostheses: update 1990, suppl 150
- Morphometry
  - Dimensions of scala tympani in human and cat with reference to cochlear implants, 871
  - Morphometric analysis of normal human spiral ganglion cells, 340
  - Morphometric studies of continuum of otitis media, suppl 148:23
  - Morphometry of ampullar dark cells, 877
- Mucocele
  - Maxillary sinus mucocele, 321
- Mucormycosis
  - Rhinocerebral mucormycosis: computed tomographic imaging of cavernous sinus thrombosis, 160
- Mucosa
  - Proliferation and differentiation characteristics of normal human squamous mucosal cells of upper aerodigestive tract, 29
- Mucus
  - Quantitation of tubotympanic mucociliary clearance in otitis media with effusion, 211
- Mummy
  - Exercise in paleo-otolaryngology: head and neck examination of two Egyptian mummies, 742
- Muscle
  - Electromyography of inferior constrictor and cricopharyngeal muscles during swallowing, 466
  - Fatigue resistance of canine vocal fold muscle, 228
  - Nonclosure of pharyngeal muscle after laryngectomy, 507
  - Platysma myocutaneous flap for repair of hypopharyngeal strictures, 945
  - Reinnervation of canine posterior cricoarytenoid muscle with sympathetic preganglionic neurons, 167
  - Systems architecture for quantification of dynamic myoelectric and kinematic activity of human vocal tract, 902
- National Institutes of Health
  - Otitis media research: NIH perspective, suppl 148:12
- Neck
  - Neck dissection for laryngeal adenoid cystic carcinoma: is it indicated? 277
- Necrotizing fasciitis
  - Cervical necrotizing fasciitis: uncommon sequela to dental infection, 643
- Nerve
  - Anomaly of hypoglossal nerve: embryologic, anatomic, and surgical considerations, 304
  - Nerve fiber analysis and aging process of vestibulocochlear nerve, 863
  - Pathologic findings in labyrinthine segment of facial nerve in case of facial paralysis, 327
- Neurofibromatosis
  - Correlative imaging of sphenoid dysplasia accompanying neurofibromatosis, 137
- Nodules
  - Tracheobronchopathia osteochondroplastica, 689
- Nose
  - Beta-adrenoceptor control of peroxidase synthesis in nasal glands, 581
  - Immunohistochemical examination of olfactory mucosa in patients with olfactory disturbance, 205
  - Nasopharyngeal craniopharyngioma. Case report and literature review, 633
  - Nasopharyngeal mass: manifestation of inflammatory otologic disease, 543
  - Use of nasal valve stent with anterior rhinomanometry to quantitate nasal valve obstruction, 175
  - Use of nasogastric tube after total laryngectomy: is it truly necessary? 513
- Obituaries
  - David D. DeWeese, 839
  - Juergen Tonndorf, 239
- Obstruction
  - Approach for oxygenation of newborn with airway obstruction due to cervical mass, 179
  - Effect of helium concentration on experimental upper airway obstruction, 556
  - Endoscopic laryngeal surgery for bilateral midline vocal cord

- obstruction, 605
- Ligneous conjunctivitis: ophthalmic disease with potentially fatal tracheobronchial obstruction. Laryngeal and tracheobronchial features, 509
- Severe upper airway obstruction in children secondary to lingual tonsil hypertrophy, 621
- Oncocytes
  - Non-Warthin's tumor oncocytic lesions, 674
- Oral cavity
  - Human papillomavirus in squamous cell carcinoma, leukoplakia, lichen planus, and clinically normal epithelium of oral cavity, 55
- Organ of Corti
  - Morphology of synapses at base of hair cells in organ of Corti of chimpanzee, 215
- Osteoclast
  - Inhibition of osteoclast recruitment at local site by 1-hydroxyethylidene-1,1-bisphosphonate (HEBP), 738
- Osteopathology
  - Ancient temporal bone osteopathology, 146
- Otitis externa
  - Nasopharyngeal mass: manifestation of inflammatory otologic disease, 543
- Otitis media
  - Danish approach to treatment of secretory otitis media. Report of Danish Consensus Conference, Copenhagen, 1987, suppl 146
  - Endotoxin and lysosomal protease activity in acute and chronic otitis media with effusion, 379
  - Histopathologic study of otitis media in individuals with head and neck tumors, 827
  - Identification and characterization of middle ear vascular leakage sites in experimental otitis media, 810
  - Imbalance and chronic secretory otitis media in children: effect of myringotomy and insertion of ventilation tubes on body sway, 477
  - Morphologic and biochemical study of vascular permeability of middle ear mucosa in experimental otitis media, 654
  - Quantitation of tubotympanic mucociliary clearance in otitis media with effusion, 211
  - Responses to rubella, tetanus, and diphtheria vaccines in otitis-prone and non-otitis-prone children, 628
  - Rhinovirus in otitis media with effusion, 451
  - Symposium on pathophysiology of otitis media, suppl 148
  - Ventilation tube duration versus design, 722
  - Workshop on epidemiology of otitis media, suppl 149
- Otopathology
  - Otopathologic correlates of continuum of otitis media, suppl 148:17
- Otorrhea
  - Arachnoid granulation cerebrospinal fluid otorrhea, 854
- Otosclerosis
  - Immunohistologic findings in otosclerosis, 349
- Ototopical drugs
  - Toxicity of ototopical drugs: animal modeling, suppl 148:42
- Ototoxic drugs
  - Clinical perspectives on ototoxic drugs, suppl 148:39
- Paget's disease
  - In search of pathologic correlates for hearing loss and vertigo in Paget's disease. Clinical and histopathologic study of 26 temporal bones, suppl 145
- Internal auditory canal enlargement in Paget's disease appearing as bilateral acoustic neuromas, 833
- Palate
  - Role of soft palate in laryngeal functions and selected voice qualities. Simultaneous velolaryngeal videoendoscopy, 18
- Paleo-otolaryngology
  - Exercise in paleo-otolaryngology: head and neck examination of two Egyptian mummies, 742
- Papillomavirus
  - Human papillomavirus in squamous cell carcinoma, leukoplakia, lichen planus, and clinically normal epithelium of oral cavity, 55
- Paraganglioma
  - Multiple paragangliomas, 85
- Paralysis
  - Combined laryngeal framework medialization and reinnervation for unilateral vocal fold paralysis, 778
  - Pathologic findings in labyrinthine segment of facial nerve in case of facial paralysis, 327
  - Surgical treatment for laryngeal paralysis in infants and children, 124
  - Transcutaneous intrafold injection for unilateral vocal fold paralysis: functional results, 598
- Pathology Consultation
  - Biopsy of lip and Sjögren's syndrome, 323
  - Histopathologic grading of salivary gland neoplasms
    - I. Mucoepidermoid carcinomas, 835
    - II. Acinic cell carcinomas, 929
    - III. Adenoid cystic carcinomas, 1007
  - Lymphoepithelial cysts of parotid region: "new face" on old lesion, 162
  - Metastases to major salivary glands, 501
  - Non-Warthin's tumor oncocytic lesions, 674
  - Sebaceous lesions of salivary glands and oral cavity, 416
  - Sialadenoma papilliferum, 756
  - Squamous carcinomas with glandlike (adenoid) features, 87
  - Undifferentiated carcinoma with lymphoid stroma of major salivary glands, 236
  - Warthin's tumor, 588
- Pathophysiology
  - Symposium on pathophysiology of otitis media, suppl 148
- Perforation
  - Retropharyngeal abscess caused by traumatic perforation of hypopharynx by fishbone, 927
- Perilymph
  - Histopathologic study of perilymph-suctioned labyrinth, 316
- Peroxidase
  - Beta-adrenoceptor control of peroxidase synthesis in nasal glands, 581
- Phonation
  - Glottographic analysis of phonation in excised canine larynx, 396
  - See also Voice
- Photoradiation therapy
  - Effect of bleomycin on hematoporphyrin derivative phototherapy of solid tumors, 941
  - Photoradiation therapy of animal tumors and nasopharyngeal carcinoma, 454
- Plastipore
  - Ceravital versus Plastipore in tympanoplasty: randomized prospective trial, 112

- Plummer-Vinson syndrome  
Importance of iron repletion in management of Plummer-Vinson syndrome, 51
- Polyp  
Goblet cell density in nasal polyps, 310  
Laryngeal granulomatous polyp after short-term intubation of child, 183
- Posterior semicircular canal occlusion  
Posterior semicircular canal occlusion for intractable benign paroxysmal positional vertigo, 330
- Prevalence of otitis media  
Danish medical service, suppl 146:5  
Frequency and course of disease, suppl 146:7  
Introduction and description of extent of problem, suppl 146:5
- Prognosis  
Prognostic factors in nonsevere acute otitis media, suppl 149:31  
Prognostic factors in otitis media with effusion, suppl 149:29
- Prophylaxis  
Can secretory otitis media be prevented? suppl 146:25
- Prostaglandin  
Effect of prostaglandin, leukotriene, and arachidonic acid on experimental otitis media with effusion in chinchillas, suppl 148:28
- Prosthesis  
Manual for use of Montgomery® laryngeal, tracheal, and esophageal prostheses: update 1990, suppl 150  
Reconstruction of middle ear with hydroxylapatite implants: long-term results, suppl 144:12
- Psychology (otitis media)  
Psychological consequences of different types of treatment, suppl 146:22
- Pyriform sinus  
Immunohistochemical interpretation of early epithelial disorders of pyriform sinus, 782
- Ramsay Hunt syndrome  
Detection of specific IgA antibodies to varicella zoster virus in serum of patients with Ramsay Hunt syndrome, 461  
Middle ear mucosa in Ramsay Hunt syndrome, 359
- Recurrence  
Supraglottic carcinoma: patterns of recurrence, 12
- Regulations  
Prevention of aspiration in infants and young children: federal regulations, 273
- Reinnervation  
Combined laryngeal framework medialization and reinnervation for unilateral vocal fold paralysis, 778  
Reinnervation of canine posterior cricoarytenoid muscle with sympathetic preganglionic neurons, 167  
Teflon versus thyroplasty versus nerve transfer: comparison, 759
- Research (otitis media)  
Research and education in future, suppl 146:26
- Residual cholesteatoma  
Factors influencing probability of residual cholesteatoma, 120
- Retrosigmoid approach  
Microvascular decompression by retrosigmoid approach for trigeminal neuralgia: experience in 200 patients, 129
- Rhabdomyoma  
Adult rhabdomyoma of base of tongue, 234
- Rhinovirus  
Rhinovirus in otitis media with effusion, 451
- Round window membrane  
Round window membrane permeability during experimental purulent otitis media: altered Cortisporin ototoxicity, suppl 148:46
- Salivary glands  
Experience with Wilkie procedure for sialorrhea, 730  
Histopathologic grading of salivary gland neoplasms:  
I. Mucoepidermoid carcinomas, 835  
II. Acinic cell carcinomas, 929  
III. Adenoid cystic carcinomas, 1007  
Metastases to major salivary glands, 501  
Sebaceous lesions of salivary glands and oral cavity, 416  
Sialadenoma papilliferum, 756
- Sarcoma  
Osteogenic sarcoma of frontal sinus, 489
- Seasickness  
Vestibulo-ocular reflex as parameter of seasickness susceptibility, 131
- Sequelae (otitis media)  
Advantages and disadvantages of treatment over short observation time, suppl 146:19  
Advantages and disadvantages of treatment with ventilation tubes over long observation time, suppl 146:19  
Prevalence and progression of sequelae following secretory otitis, suppl 149:36  
Sequelae of secretory otitis media and relationship to chronic suppurative otitis media, suppl 146:18
- Sinus  
Calibrated approach to endoscopic sinus surgery, 1  
Correlation between mastoid pneumatization and position of lateral sinus, 142  
Correlative imaging of sphenoid dysplasia accompanying neurofibromatosis, 137  
Experience of permanent ventilation and drainage system in management of purulent maxillary sinusitis, 192  
Histamine stimulation of mucociliary activity in rabbit maxillary sinus, 666  
Nonsquamous cell malignancies of paranasal sinuses, 5  
Osteogenic sarcoma of frontal sinus, 489  
Rhinocerebral mucormycosis: computed tomographic imaging of cavernous sinus thrombosis, 160
- Sjögren's syndrome  
Biopsy of lip and Sjögren's syndrome, 323
- Speech  
Surgeons' reported attitudes and practices regarding alaryngeal speech, 197
- Spiral ganglion  
Morphometric analysis of normal human spiral ganglion cells, 340
- Staging  
Staging for cholesteatoma in child, adolescent, and adult, 256  
Staging proposal for external auditory meatus carcinoma based on preoperative clinical examination and computed tomography findings, 714
- Stenosis  
Prospective study of subglottic stenosis in intubated neonates, 390



- Stent**  
Effect of laryngeal stenting in rabbit model, 108  
Use of nasal valve stent with anterior rhinomanometry to quantify nasal valve obstruction, 175
- Streptomycin**  
Titration streptomycin therapy for bilateral Meniere's disease. Follow-up report, 923
- Stria vascularis**  
Changes in capillaries of stria vascularis after hemorrhagic shock, 660
- Sulcus vocalis**  
Sulcus vocalis: functional aspects, 679
- Supraglottis**  
Early supraglottic cancer, 593  
Endoscopic management of early supraglottic cancer, 951
- Surgery**  
Calibrated approach to endoscopic sinus surgery, 1  
Facial nerve monitoring in otologic surgery: clinical indications and intraoperative technique, 911  
Laryngeal and laryngotracheoesophageal clefts: role of early surgical repair, 98  
Platysma myocutaneous flap for repair of hypopharyngeal strictures, 945  
Surgical treatment for laryngeal paralysis in infants and children, 124  
Teflon versus thyroplasty versus nerve transfer: comparison, 759  
*See also* Implant, Larynx, Laser
- Swallowing**  
Electromyography of inferior constrictor and cricopharyngeal muscles during swallowing, 466  
Interpreting sounds of swallowing: fluid flow through cricopharyngeus, 749
- Symptoms of otitis media**  
Degree of severity, suppl 146:9  
Role of general practitioner in diagnosis, suppl 146:10  
Symptoms and diagnostic methods, suppl 146:9
- Temporal bone**  
Ancient temporal bone osteopathology, 146
- Thrombosis**  
Clinical diagnosis of anterior inferior cerebellar artery thrombosis. Autopsy and temporal bone histopathologic study, 261
- Thyroid**  
Histology of Isshiki thyroplasty type I, 42
- Tinnitus**  
Evaluation of amino-oxyacetic acid as palliative in tinnitus, 74
- Tongue**  
Cancer of tongue base treated by transpharyngeal approach, 300
- Tonndorf, Juergen.** Obituary, 239
- Tonsils**  
Microbiology of "normal" tonsils, 980  
Severe upper airway obstruction in children secondary to lingual tonsil hypertrophy, 621  
Tonsillectomy and adenoidectomy: changing trends, 187
- Trachea**  
Bronchogenic cyst with tracheal involvement, 89  
Predictive value of Glasgow Coma Scale for tracheotomy in head-injured patients, 38
- Quantitative study of early effects of tracheotomy and endotracheal intubation on rabbit tracheobronchial tree, 62**  
Tracheobronchopatia osteochondroplastica, 689  
Tracheotomy in first year of life, 896
- Transplant**  
Otolaryngologic management of posttransplant lymphoproliferative disease in children, 445
- Trauma**  
Epiglottic laryngoplasty for repair of blunt laryngopharyngeal trauma, 709
- Trigeminal neuralgia**  
Microvascular decompression by retrosigmoid approach for trigeminal neuralgia: experience in 200 patients, 129
- Tympanic membrane**  
Ceravital versus Plastipore in tympanoplasty: randomized prospective trial, 112  
Epidermal growth factor binding and action on tympanic membranes, 80  
Hydrocortisone delay of tissue repair of experimental tympanic membrane perforations, 647
- Varicella zoster virus**  
Detection of specific IgA antibodies to varicella zoster virus in serum of patients with Ramsay Hunt syndrome, 461
- Vascular leakage**  
Identification and characterization of middle ear vascular leakage sites in experimental otitis media, 810
- Vascular permeability**  
Morphologic and biochemical study of vascular permeability of middle ear mucosa in experimental otitis media, 654
- Ventilation**  
Experience of permanent ventilation and drainage system in management of purulent maxillary sinusitis, 192  
Ventilation tube duration versus design, 722
- Vertigo**  
Posterior semicircular canal occlusion for intractable benign paroxysmal positional vertigo, 330  
Results of microvascular decompression of eighth nerve as treatment for disabling positional vertigo, 724
- Vestibular system**  
Head stability and gaze during vertical whole-body oscillations, 883  
Increased glial fibrillary acidic protein immunoreactivity in astrocytes within lateral vestibular nucleus of cat following labyrinthectomy and vestibular neurectomy, 221  
Nerve fiber analysis and aging process of vestibulocochlear nerve, 863  
Sensitivity and specificity of head-shaking test for detecting vestibular system abnormalities, 539  
Vestibular recruitment in Meniere's disease, 805  
Vestibulo-ocular reflex as parameter of seasickness susceptibility, 131
- Vocal fold**  
Endoscopic laryngeal surgery for bilateral midline vocal cord obstruction, 605  
Fatigue resistance of canine vocal fold muscle, 228  
Transcutaneous intrafold injection for unilateral vocal fold paralysis: functional results, 598
- Voice**  
Role of soft palate in laryngeal functions and selected voice qualities. Simultaneous velolaryngeal videoendoscopy, 18



- Sulcus vocalis: functional aspects, 679
- Systems architecture for quantification of dynamic myoelectric and kinematic activity of human vocal tract, 902
- Warthin's tumor
  - Warthin's tumor, 588
- Wilkie procedure
  - Experience with Wilkie procedure for sialorrhea, 730
- Xenon clearance
  - Decrease in xenon clearance during response to cold, dry air: problems of interpretation, 155